

Appl. No. 10/642,949
Atty. Docket No.: 2002B116/2
Amdt. Dated July 17, 2006
Reply to Final Office Action of April 17, 2006

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Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in this application.

Listing of Claims:

1. (Currently Amended) A heat-shrinkable monolayer film comprising a polymer blend comprising:

- (a) a polyethylene copolymer having a CDBI of at least 70%, a melt index $I_{2.16}$ of from 0.1 to 15 g/10 min., a density of from 0.910 to 0.940 g/cm³, a melt index ratio $I_{21.6}/I_{2.16}$ of from 30 to 80, and an Mw/Mn ratio of from 2.5 to 5.5; and
- (b) a low density polyethylene (LDPE) having a melt index $I_{2.16}$ of from 0.1 to 10 g/10 min and a density of from 0.920 to 0.940 g/cm³.

wherein the film has a clarity value of at least 10%; a puncture resistance damaging energy value of at least 40 mJ/μm; a machine direction plastic force of less than 7 cN/15 mm, and a machine direction shrink stress of at least 1.10 mPa.

2. (Original) The film of claim 1, wherein the clarity value is at least 15%.

3. (Original) The film of claim 1, wherein the clarity value is at least 20%.

4. (Original) The film of claim 1, wherein the puncture resistance damaging energy value is at least 65 mJ/μm.

5. (Original) The film of claim 1, wherein the puncture resistance damaging energy value is at least 90 mJ/μm.

Claims 6.-7. (Cancelled)

8. (Original) The film of claim 1, wherein the film has an averaged shrink stress of at least 1.18 MPa, wherein the averaged shrink stress is the arithmetic mean of machine direction and transverse direction shrink stress values.

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9. (Original) The film of claim 1, wherein component (a) is present in the blend in an amount of at least 5 by weight, based on the total weight of component (a) and component (b).
10. (Original) The film of claim 1, wherein component (a) is present in the blend in an amount of at least 15 by weight, based on the total weight of component (a) and component (b).
11. (Original) The film of claim 1, wherein component (a) is present in the blend in an amount of at least 30 by weight, based on the total weight of component (a) and component (b).
12. (Original) The film of claim 1, wherein the blend further comprises a high density polyethylene (HDPE) in an amount of from 0.5% to 20% by weight, based on the total weight of component (a) and component (b).
13. (Original) The film of claim 1, wherein the blend further comprises a high density polyethylene (HDPE) in an amount of from 2% to 15% by weight, based on the total weight of component (a) and component (b).
14. (Original) The film of claim 1, wherein the film has a thickness of from 10 to 500 μm .
15. (Original) The film of claim 1, wherein the film has a thickness of from 15 to 80 μm .
16. (Original) The film of claim 1, wherein the film has a thickness of from 80 to 200 μm .
17. (Currently Amended) A heat-shrinkable multilayer film comprising at least one layer comprising a polymer blend, the blend comprising:
- (a) a polyethylene copolymer having a CDBI of at least 70%, a melt index $I_{2.16}$ of from 0.1 to 15 g/10 min., a density of from 0.910 to 0.940 g/cm³, a melt index ratio $I_{21.6}/I_{2.16}$ of from 30 to 80, and an Mw/Mn ratio of from 2.5 to 5.5; and
 - (b) a low density polyethylene (LDPE) having a melt index $I_{2.16}$ of from 0.1 to 10 g/10 min. and a density of from 0.920 to 0.940 g/cm³.
- wherein the film has a clarity value of at least 20%; a puncture resistance damaging energy value of at least 100 mJ/ μm ; a machine direction thermal force of at least 1.25 N/15 mm; and a machine direction shrink stress of at least 1.20 mPa.

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18. (Original) The film of claim 17, wherein the clarity value is at least 50%.
19. (Original) The film of claim 17, wherein the clarity value is at least 70%.
20. (Original) The film of claim 17, wherein the film has a puncture resistance damaging energy value of at least 100 mJ/ μ m.
21. (Original) The film of claim 17, wherein the film has a puncture resistance damaging energy value of at least 125 mJ/ μ m.
22. (Original) The film of claim 17, wherein the film has a puncture resistance damaging energy value of at least 150 mJ/ μ m.
23. (Cancelled)
24. (Original) The film of claim 17, wherein the film has a machine direction thermal force value of at least 1.30 N/15mm.
25. (Cancelled)
26. (Original) The film of claim 17, wherein the film has a machine direction shrink stress value of at least 1.25 MPa.
27. (Original) The film of claim 17, wherein component (a) is present in the blend in an amount of at least 10% by weight, based on the total weight of component (a) and component (b).
28. (Original) The film of claim 17, wherein component (a) is present in the blend in an amount of at least 30% by weight, based on the total weight of component (a) and component (b).
29. (Original) The film of claim 17, wherein component (a) is present in the blend in an amount of at least 50% by weight, based on the total weight of component (a) and component (b).
30. (Original) The film of claim 17, wherein component (a) is present in the blend in an amount of at least 70% by weight, based on the total weight of component (a) and component (b).

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31. (Original) The film of claim 17, wherein the blend further comprises a high density polyethylene (HDPE) in an amount of from 0.5% to 20% by weight, based on the total weight of component (a) and component (b).
32. (Original) The film of claim 17, wherein the blend further comprises a high density polyethylene (HDPE) in an amount of from 2% to 15% by weight, based on the total weight of component (a) and component (b).
33. (Original) The film of claim 17, wherein the film has a thickness of from 10 to 500 μm .
34. (Original) The film of claim 17, wherein the film has a thickness of from 15 to 80 μm .
35. (Original) The film of claim 17, wherein the film has a thickness of from 80 to 200 μm .
36. (Currently Amended) The film ~~of any~~ of claim 1, wherein the CDBI of the polyethylene copolymer is at least 75%.
37. (Currently Amended) The film ~~of any~~ of claim 1, wherein the CDBI of the polyethylene copolymer is at least 85%.
38. (Currently Amended) The film ~~of any~~ of claim 1, wherein the melt index is from 0.3 to 10 g/10 min.
39. (Currently Amended) The film ~~of any~~ of claim 1, wherein the density of the polyethylene copolymer is from 0.916 to 0.940 g/cm^3 .
40. (Currently Amended) The film ~~of any~~ of claim 1, wherein the density of the polyethylene copolymer is from 0.918 to 0.935 g/cm^3 .
41. (Currently Amended) The film ~~of any~~ of claim 1, wherein the melt index ratio is from 35 to 60.
42. (Currently Amended) The film ~~of any~~ of claim 1, wherein the Mw/Mn ratio is from 2.8 to 4.5.

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43. (Currently Amended) The film ~~of any~~ of claim 1, wherein the Mw/Mn ratio is from 3.0 to 4.0.

44. (Original) An article wrapped with the film of claim 1.

45. (Original) A method of shrink-wrapping an article, comprising (a) providing an article; (b) providing the film of claim 1; (c) wrapping the article with the film; and (d) applying heat to shrink the film.

46. (Currently Amended) A polymer blend comprising:

- (a) a polyethylene copolymer having a CDBI of at least 70%, a melt index $I_{2.16}$ of from 0.1 to 15 g/10 min., a density of from 0.910 to 0.940 g/cm³, a melt index ratio $I_{21.6}/I_{2.16}$ of from 30 to 80, and an Mw/Mn ratio of from 2.5 to 5.5; and
- (b) a low density polyethylene (LDPE) having a melt index $I_{2.16}$ of from 0.1 to 10 g/10 min. and a density of from 0.920 to 0.940 g/cm³,

wherein component (a) is present in the blend in an amount of at least 5% by weight, based on the total weight of component (a) and component (b).

47. (Original) The polymer blend of claim 46, wherein component (a) is present in the blend in an amount of at least 20% by weight, based on the total weight of component (a) and component (b).

48. (Original) The polymer blend of claim 46, wherein component (a) is present in the blend in an amount of at least 50% by weight, based on the total weight of component (a) and component (b).

49. (Original) The polymer blend of claim 46, further comprising a high density polyethylene (HDPE) in an amount of from 0.5% to 20% by weight, based on the total weight of component (a) and component (b).

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50. (Original) The polymer blend of claim 46, further comprising a high density polyethylene (HDPE) in an amount of from 2% to 15% by weight, based on the total weight of component (a) and component (b).

51. (Currently Amended) The film ~~of any~~ of claim 17, wherein the CDBI is at least 75%.

52. (Currently Amended) The film ~~of any~~ of claim 17, wherein the CDBI is at least 85%.

53. (Currently Amended) The film ~~of any~~ of claim 17, wherein the melt index is from 0.3 to 10 g/10 min.

54. (Currently Amended) The film ~~of any~~ of claim 17, wherein the density of the polyethylene copolymer is from 0.916 to 0.940 g/cm³.

55. (Currently Amended) The film ~~of any~~ of claim 17, wherein the density of the polyethylene copolymer is from 0.918 to 0.935 g/cm³.

56. (Currently Amended) The film ~~of any~~ of claim 17, wherein the melt index ratio is from 35 to 60.

57. (Currently Amended) The film ~~of any~~ of claim 17, wherein the Mw/Mn ratio is from 2.8 to 4.5.

58. (Currently Amended) The film ~~of any~~ of claim 17, wherein the Mw/Mn ratio is from 3.0 to 4.0.

59. (Original) An article wrapped with the film of claims 17.

60. (Original) A method of shrink-wrapping an article, comprising (a) providing an article; (b) providing the film of claim 17; (c) wrapping the article with the film; and (d) applying heat to shrink the film.

61. (New) The film of claim 1, wherein the CDBI of the polyethylene copolymer is at least 80%.

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62. (New) The film of claim 17, wherein the CDBI of the polyethylene copolymer is at least 80%.

63. (New) The film of claim 46, wherein the CDBI of the polyethylene copolymer is at least 80%.

64. (New) The film of claim 1, wherein the CDBI of the polyethylene copolymer is at least 83%.

65. (New) The film of claim 17, wherein the CDBI of the polyethylene copolymer is at least 83%.

66. (New) The film of claim 46, wherein the CDBI of the polyethylene copolymer is at least 83%.

67. (New) The film of claim 1, wherein component (a) is present in the blend in an amount of at least 50 by weight, based on the total weight of component (a) and component (b).

68. (New) The film of claim 1, wherein component (a) is present in the blend in an amount of at least 75 by weight, based on the total weight of component (a) and component (b).

69. (New) The film of claim 1, wherein component (a) is present in the blend in an amount of at least 80 by weight, based on the total weight of component (a) and component (b).

70. (New) The film of claim 17, wherein component (a) is present in the blend in an amount of at least 50 by weight, based on the total weight of component (a) and component (b).

71. (New) The film of claim 17, wherein component (a) is present in the blend in an amount of at least 75 by weight, based on the total weight of component (a) and component (b).

72. (New) The film of claim 17, wherein component (a) is present in the blend in an amount of at least 80 by weight, based on the total weight of component (a) and component (b).

73. (New) The film of claim 46, wherein component (a) is present in the blend in an amount of at least 50 by weight, based on the total weight of component (a) and component (b).

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74. (New) The film of claim 46, wherein component (a) is present in the blend in an amount of at least 75 by weight, based on the total weight of component (a) and component (b).

75. (New) The film of claim 46, wherein component (a) is present in the blend in an amount of at least 80 by weight, based on the total weight of component (a) and component (b).

76. (New) The film of claim 1, wherein the low density polyethylene (LDPE) has a melt index $I_{2.16}$ of 2.0 g/10 min or less.

77. (New) The film of claim 17, wherein the low density polyethylene (LDPE) has a melt index $I_{2.16}$ of 2.0 g/10 min or less.

78. (New) The film of claim 46, wherein the low density polyethylene (LDPE) has a melt index $I_{2.16}$ of 2.0 g/10 min or less.